Toxicology, 54 (1989) 347–350
Elsevier Scientific Publishers Ireland Ltd.

TOXICOLOGY

SUBJECT INDEX

Volume 54 (1989)

acinar-cell tumors, benzyl acetate, long-term studies, 233
acrosome reaction, male mouse, lead, motility, sperm-zona binding, in vitro fertilization, 151
aflatoxin B_1, BALB/c mice, immunotoxicity, lymphocyte function, suppressor cells, DNA synthesis in lymphocytes, lymphocyte cultures, 31
aldrin, brain, heart, calmodulin, calcium ATPase inhibition, dieldrin, endrin, 17
allogeneic cellular immune response, *O,S,S,*-trimethyl phosphorodithioate, humoral immune response, subacute, 183
3-amino-1,2,4-triazole, hydrogen peroxide, hepatocytes, diquat, paraquat, xanthine, 129
antagonism, 2,3,7,8-TCDD, immunotoxicity, teratogenicity, induction, 139

BALB/c mice, aflatoxin B_1, immunotoxicity, lymphocyte function, suppressor cells, DNA synthesis in lymphocytes, lymphocyte cultures, 31
benzyl acetate, long-term studies, acinar-cell tumors, 233
bleomycin, dimethyl sulfoxide, butylated hydroxytoluene, pulmonary fibrosis, hydroxyproline, rats, mice, 197
brain, heart, calmodulin, calcium ATPase inhibition, aldrin, dieldrin, endrin, 17
brain, toluene, catecholamines, neonatal exposure, utilization, hormones, 1
brush border membranes, cadmium, glucose transport, rat small intestine, 297
butylated hydroxytoluene, dimethyl sulfoxide, bleomycin, pulmonary fibrosis, hydroxyproline, rats, mice, 197

cadmium, brush border membranes, glucose transport, rat small intestine, 297
calcium ATPase inhibition, brain, heart, calmodulin, aldrin, dieldrin, endrin, 17
calmodulin, brain, heart, calcium ATPase inhibition, aldrin, dieldrin, endrin, 17
catecholamines, toluene, brain, neonatal exposure, utilization, hormones, 1
chelation, nickel, metals, SMON, clioquinol, 59
clioquinol, chelation, nickel, metals, SMON, 59
contact activation, liposome, platelet aggregation, thrombosis, 273
coumarin hydroxylase, nitrogen dioxide, rat lung, xenobiotic metabolism, cytochrome *P*-450, 7-ethoxycoumarin *O*-deethylase, 281
covalent binding, metabolic activation, glutathione depletion, 101
cytochrome *P*-450, nitrogen dioxide, rat lung, xenobiotic metabolism, coumarin hydroxylase, 7-ethoxycoumarin *O*-deethylase, 281
cytogenetics, inbred strains, recombinant inbred strains, *K-ras2* proto-oncogene, *H-2* region, glucocorticoids, 241

delayed neuropathy, organophosphates, phosphoramidates, methamidophos, neuropathy target, esterase, pesticide, 89
dieldrin, brain, heart, calmodulin, calcium ATPase inhibition, aldrin, endrin, 17
dimercaptopropanesulfonate, dimercaptosuccinic acid, mercury, rat tissues, mobilization, 323
dimercaptosuccinic acid, dimercaptopropanesulfonate, mercury, rat tissues, mobilization, 323
dimethyl sulfoxide, bleomycin, butylated hydroxytoluene, pulmonary fibrosis, hydroxyproline, rats, mice, 197
N,N'-diphenyl-*p*-phenylenediamine, long-term bioassay, rat, 69

diquat, hydrogen peroxide, 3-amino-1,2,4-triazole, hepatocytes, paraquat, xanthine, 129
DNA synthesis in lymphocytes, aflatoxin B_1, BALB/c mice, immunotoxicity, lymphocyte function, suppressor cells, lymphocyte cultures, 31

endrin, brain, heart, calmodulin, calcium ATPase inhibition, aldrin, dieldrin, 17
epiphyseal lesions, zinc dimethyldithiocarbamate (Ziram), rats, 45
esterase, delayed neuropathy, organophosphates, phosphoramidates, methamidophos, neuropathy target, pesticide, 89
7-ethoxycoumarin *O*-deethylase, nitrogen dioxide, rat lung, xenobiotic metabolism, cytochrome *P*-450, coumarin hydroxylase, 281

Fenclor 42, immunotoxicity, mice, splenocytes, 207

gastrointestinal lesions, phenylbutazone, sex differences, nephrotoxicity, renal *p*-aminohippurate accumulation and renal gluconeogenesis, reduced glutathione, malondialdehyde, 163
glucocorticoids, inbred strains, recombinant inbred strains, *K-ras2* proto-oncogene, *H-2* region, cytogenetics, 241
glucose transport, cadmium, brush border membranes, rat small intestine, 297
glutathione depletion, metabolic activation, covalent binding, 101
guinea-pig, sodium cyanide, prophylactic antidotes, sodium thiosulphate, hydroxocobalamin, 335

H-2 region, inbred strains, recombinant inbred strains, *K-ras2* proto-oncogene, cytogenetics, glucocorticoids, 241
heart, brain, calmodulin, calcium ATPase inhibition, aldrin, dieldrin, endrin, 17
hepatocytes, hydrogen peroxide, 3-amino-1,2,4-triazole, diquat, paraquat, xanthine, 129
hormones, toluene, brain, catecholamines, neonatal exposure, utilization, 1
humoral immune response, *O,S,S,*-trimethyl phosphorodithioate, allogeneic cellular immune response, subacute, 183
hydrogen peroxide, 3-amino-1,2,4-triazole, hepatocytes, diquat, paraquat, xanthine, 129
hydroxocobalamin, guinea-pig, sodium cyanide, prophylactic antidotes, sodium thiosulphate, 335
6-hydroxydopamine, *N*-methylthiobenzamide, pulmonary edema, reserpine, norepinephrine, hypothermia, 311
hydroxyproline, dimethyl sulfoxide, bleomycin, butylated hydroxytoluene, pulmonary fibrosis, rats, mice, 197
hypothermia, *N*-methylthiobenzamide, pulmonary edema, 6-hydroxydopamine, reserpine, norepinephrine, 311

ibotenic acids, retina, PNMT, kainic, quisqualic, 177
immunotoxicity, aflatoxin B_1, BALB/c mice, lymphocyte function, suppressor cells, DNA synthesis in lymphocytes, lymphocyte cultures, 31
immunotoxicity, Fenclor 42, mice, splenocytes, 207
immunotoxicity, 2,3,7,8-TCDD, teratogenicity, induction, antagonism, 139
inbred strains, recombinant inbred strains, *K-ras2* proto-oncogene, *H-2* region, cytogenetics, glucocorticoids, 241
induction, 2,3,7,8-TCDD, immunotoxicity, teratogenicity, antagonism, 139
instillation, lung, oedema, zinc, smoke, 79
in vitro fertilization, male mouse, lead, motility, sperm-zona binding, acrosome reaction, 151

K-ras2 proto-oncogene, inbred strains, recombinant inbred strains, *H-2* region, cytogenetics, glucocorticoids, 241
kainic, retina, PNMT, quisqualic, ibotenic acids, 177

lead, male mouse, motility, sperm-zona binding, acrosome reaction, in vitro fertilization, 151
liposome, platelet aggregation, contact activation, thrombosis, 273
long-term bioassay, *N,N*-diphenyl-*p*-phenylenediamine, rat, 69
long-term studies, benzyl acetate, acinar-cell tumors, 233
lung, oedema, zinc, instillation, smoke, 79
lymphocyte cultures, aflatoxin B_1, BALB/c mice, immunotoxicity, lymphocyte function, suppressor cells, DNA synthesis in lymphocytes, 31
lymphocyte function, aflatoxin B_1, BALB/c mice, immunotoxicity, suppressor cells,

DNA synthesis in lymphocytes, lymphocyte cultures, 31

male mouse, lead, motility, sperm-zona binding, acrosome reaction, in vitro fertilization, 151
malondialdehyde, phenylbutazone, sex differences, nephrotoxicity, gastrointestinal lesions, renal *p*-aminohippurate accumulation and renal gluconeogenesis, reduced glutathione, 163
mercury, dimercaptopropanesulfonate, dimercaptosuccinic acid, rat tissues, mobilization, 323
metabolic activation, glutathione depletion, covalent binding, 101
metals, chelation, nickel, SMON, clioquinol, 59
methamidophos, delayed neuropathy, organophosphates, phosphoramidates, neuropathy target, esterase, pesticide, 89
N-methylthiobenzamide, pulmonary edema, 6-hydroxydopamine, reserpine, norepinephrine, hypothermia, 311
mice, dimethyl sulfoxide, bleomycin, butylated hydroxytoluene, pulmonary fibrosis, hydroxyproline, rats, 197
mice, Fenclor 42, immunotoxicity, splenocytes, 207
mobilization, dimercaptopropanesulfonate, dimercaptosuccinic acid, mercury, rat tissues, 323
motility, male mouse, lead, sperm-zona binding, acrosome reaction, in vitro fertilization, 151

neonatal exposure, toluene, brain, catecholamines, utilization, hormones, 1
nephrotoxicity, phenylbutazone, sex differences, gastrointestinal lesions, renal *p*-aminohippurate accumulation and renal gluconeogenesis, reduced glutathione, malondialdehyde, 163
neuropathy target, delayed neuropathy, organophosphates, phosphoramidates, methamidophos, esterase, pesticide, 89
nickel, chelation, metals, SMON, clioquinol, 59
nitrogen dioxide, rat lung, xenobiotic metabolism, cytochrome *P*-450, coumarin hydroxylase, 7-ethoxycoumarin *O*-deethylase, 281
norepinephrine, *N*-methylthiobenzamide, pulmonary edema, 6-hydroxydopamine, reserpine, hypothermia, 311

O,S,S-trimethyl phosphorodithioate, humoral immune response, allogeneic cellular immune response, subacute, 183
oedema, lung, zinc, instillation, smoke, 79
organophosphates, delayed neuropathy, phosphoramidates, methamidophos, neuropathy target, esterase, pesticide, 89
ototoxicity, quinine, toxicity, teratogenicity, 219

paraquat, hydrogen peroxide, 3-amino-1,2,4-triazole, hepatocytes, diquat, xanthine, 129
pesticide, delayed neuropathy, organophosphates, phosphoramidates, methamidophos, neuropathy target, esterase, 89
phenylbutazone, sex differences, nephrotoxicity, gastrointestinal lesions, renal *p*-aminohippurate accumulation and renal gluconeogenesis, reduced glutathione, malondialdehyde, 163
phosphoramidates, delayed neuropathy, organophosphates, methamidophos, neuropathy target, esterase, pesticide, 89
platelet aggregation, liposome, contact activation, thrombosis, 273
PNMT, retina, kainic, quisqualic, ibotenic acids, 177
prophylactic antidotes, guinea-pig, sodium cyanide, sodium thiosulphate, hydroxocobalamin, 335
pulmonary edema, *N*-methylthiobenzamide, 6-hydroxydopamine, reserpine, norepinephrine, hypothermia, 311
pulmonary fibrosis, dimethyl sulfoxide, bleomycin, butylated hydroxytoluene, hydroxyproline, rats, mice, 197

quinine, toxicity, teratogenicity, ototoxicity, 219
quisqualic, retina, PNMT, kainic, ibotenic acids, 177

rat, *N,N'*-diphenyl-*p*-phenylenediamine, long-term bioassay, 69
rats, dimethyl sulfoxide, bleomycin, butylated hydroxytoluene, pulmonary fibrosis, hydroxyproline, mice, 197
rats, zinc dimethyldithiocarbamate (Ziram), epiphyseal lesions, 45
rat lung, nitrogen dioxide, xenobiotic metabolism, cytochrome *P*-450, coumarin hydroxylase, 7-ethoxycoumarin *O*-deethylase, 281

rat small intestine, cadmium, brush border membranes, glucose transport, 297
rat tissues, dimercaptopropanesulfonate, dimercaptosuccinic acid, mercury, mobilization, 323
recombinant inbred strains, inbred strains, *K-ras2* proto-oncogene, *H-2* region, cytogenetics, glucocorticoids, 241
reduced glutathione, phenylbutazone, sex differences, nephrotoxicity, gastrointestinal lesions, renal *p*-aminohippurate accumulation and renal gluconeogenesis, malondialdehyde, 163
renal *p*-aminohippurate accumulation and renal gluconeogenesis, phenylbutazone, sex differences, nephrotoxicity, gastrointestinal lesions, reduced glutathione, malondialdehyde, 163
reserpine, *N*-methylthiobenzamide, pulmonary edema, 6-hydroxydopamine, norepinephrine, hypothermia, 311
retina, PNMT, kainic, quisqualic, ibotenic acids, 177

sex differences, phenylbutazone, nephrotoxicity, gastrointestinal lesions, renal *p*-aminohippurate accumulation and renal gluconeogenesis, reduced glutathione, malondialdehyde, 163
smoke, lung, oedema, zinc, instillation, 79
SMON, chelation, nickel, metals, clioquinol, 59
sodium cyanide, guinea-pig, prophylactic antidotes, sodium thiosulphate, hydroxocobalamin, 335
sodium thiosulphate, guinea-pig, sodium cyanide, prophylactic antidotes, hydroxocobalamin, 335
sperm-zona binding, male mouse, lead, motility, acrosome reaction, in vitro fertilization, 151
splenocytes, Fenclor 42, immunotoxicity, mice, 207
subacute, *O,S,S*,-trimethyl phosphorodithioate, humoral immune response, allogeneic cellular immune response, 183
suppressor cells, aflatoxin B_1, BALB/c mice, immunotoxicity, lymphocyte function, DNA synthesis in lymphocytes, lymphocyte cultures, 31

2,3,7,8-TCDD, immunotoxicity, teratogenicity, induction, antagonism, 139
teratogenicity, quinine, toxicity, ototoxicity, 219
teratogenicity, 2,3,7,8-TCDD, immunotoxicity, induction, antagonism, 139
thrombosis, liposome, platelet aggregation, contact activation, 273
toluene, brain, catecholamines, neonatal exposure, utilization, hormones, 1
toxicity, quinine, teratogenicity, ototoxicity, 219

utilization, toluene, brain, catecholamines, neonatal exposure, hormones, 1

xanthine, hydrogen peroxide, 3-amino-1,2,4-triazole, hepatocytes, diquat, paraquat, 129
xenobiotic metabolism, nitrogen dioxide, rat lung, cytochrome *P*-450, coumarin hydroxylase, 7-ethoxycoumarin *O*-deethylase, 281

zinc, lung, oedema, instillation, smoke, 79
zinc dimethyldithiocarbamate (Ziram), epiphyseal lesions, rats, 45

Toxicology, 54 (1989) 351–352
Elsevier Scientific Publishers Ireland Ltd.

TOXICOLOGY

AUTHOR INDEX

Volume 54 (1989)

Astroff, B. 139
Atkins, J. 79

Baer, K.E. 197
Bannister, R. 139
Baumann, K. 163
Bevan, C. 297
Biegel, L. 139
Borg, K. 59
Boutin, J.A. 129
Brown, R.F.R. 79
Buchet, J.P. 323

Canti, G. 207
Cohen, J. 177
Cojocel, C. 163
Colley, J.C. 219

Davis, D. 139
Desaiah, D. 17
Dociu, N. 163

Edwards, J.A. 219
Eneroth, P. 1
Enomoto, A. 45

Foulkes, E.C. 297
Franco, P. 207
Friedberg, K.D. 335
Fry, J.R. 101
Fukushima, S. 69
Fuxe, K. 1

Garle, M.J. 101
Gibbs, L.S. 311
Grimm, L. 273
Gustafsson, J.-Å. 1

Hagiwara, A. 69
Hansson, T. 1
Harada, T. 45
Haschek, W.M. 197
Hasegawa, R. 69
Heywood, R. 219

Isert, B. 335
Ito, N. 69

Johansson, L. 151
Johnson, M.K. 89

Kass, G.E.N. 129
Kramer, W. 335

Lauwerys, R.R. 323

Maita, K. 45
Malkinson, A.M. 241
Marelli, O. 207
Marrs, T.C. 79
Masek, L. 79
Masuda, A. 69
Masui, T. 69
Mehrotra, B.D. 17
Mengel, K. 335
Miura, T. 281
Moldéus, P. 129
Moorthy, K.S. 17

Purser, D. 219

Read, D.J. 89
Reddy, R.V. 31
Reddy, S.R. 17
Ricci, L. 207
Richards, R.J. 79
Rodgers, K.E. 183
Rutherford, K.C. 197

Safe, S. 139
Sharma, R.P. 31
Shirasu, Y. 45
Stern, M.L. 183

Takahashi, Y. 281
Tjalve, H. 59
Traiger, G.J. 311

Vilanova, E. 89
Von Euler, G. 1

Ware, C.F. 183
Wunderli-Allenspach, H. 273
Young, S.S. 233
Zbinden, G. 273

Toxicology, 54 (1989) 353–355
Elsevier Scientific Publishers Ireland Ltd.

TOXICOLOGY

CONTENTS

Volume 54 (1989)

Persistent effects of neonatal toluene exposure on regional brain catecholamine levels and turnover in the adult male rat **(Toluene seems to cause permanent cerebral changes in catecholamine metabolism that only become unmasked by a later toluene application)**
by G. von Euler, K. Fuxe, T. Hansson, P. Eneroth and J.-Å. Gustafsson (Stockholm and Huddinge, Sweden) 1–16

Effects of cyclodiene compounds on calcium pump activity in rat brain and heart **(Cyclodiene compounds may produce neurotoxicity by altering calmodulin regulated Ca-dependent events in neurons)**
by B.D. Mehrotra, K.S. Moorthy, S. Ravichandra Reddy and D. Desaiah (Tougaloo and Jackson, MS) 17–29

Effects of aflatoxin B_1 on murine lymphocytic functions **(Aflatoxin B_1 acts directly on lymphocytes and various subpopulations show different susceptibility)**
by R.V. Reddy and R.P. Sharma (Logan, UT) 31–44

Epiphyseal lesions of the femur and tibia in rats following oral chronic administration of zinc dimethyldithiocarbamate (ziram) **(Long-term exposure to ziram impairs regulation of epiphyseal closure)**
by A. Enomoto, T. Harada, K. Maita and Y. Shirasu (Iþaraki and Tokyo, Japan) 45–58

Uptake of $^{63}Ni^{2+}$ in the central and peripheral nervous system of mice after oral administration: Effects of treatments with halogenated 8-hydroxyquinolines **(Complex formation leads to higher tissue concentrations of nickel)**
by K. Borg and H. Tjälve (Uppsala, Sweden) 59–68

Long-term feeding study of *N,N'*-diphenyl-*p*-phenylenediamine in F344 rats **(No evidence for carcinogenicity was found)**
by R. Hasegawa, S. Fukushima, A. Hagiwara, T. Masui, A. Masuda and N. Ito (Nagoya, Japan) 69–78

The biochemical and pathological changes produced by the intratracheal instillation of certain components of zinc-hexachloroethane smoke **(Zinc chloride causes pulmonary oedema while zinc oxide does not)**
by R.J. Richards, J. Atkins, T.C. Marrs, R.F.R. Brown and L. Masek (Wilts, UK) 79–88

Biochemical and clinical tests of the delayed neuropathic potential of some *O*-alkyl *O*-dichlorophenyl phosphoramidate analogues of methamidophos (*O,S*-dimethyl phosphorothioamidate) **(There is a complex and also sterioisomerically determined interaction with neuronal esterases in hens)**
by M.K. Johnson, E. Vilanova and D.J. Read (Surrey, UK and Alicante, Spain) 89–100

Detection of reactive metabolites in vitro **(Non-isotopic assessment of reactive metabolites in vitro can be achieved by measuring depletion of added GSH)**
by M.J. Garle and J.R. Fry (Nottingham, UK) 101–110

Editorial acknowledgement 111–114

Contents of Journals Relating to Toxicology 115–126

Announcements 127

Drug-induced hydrogen peroxide production in isolated rat hepatocytes **(The indirect determination of intracellular hydrogen peroxide by inhibition, de-inhibition and re-inhibition of catalase is described)**
by J.A. Boutin, G.E.N. Kass and P. Moldéus (Stockholm, Sweden) 129–137

6-Methyl-1,3,8-trichlorodibenzofuran (MCDF) as a 2,3,7,8-tetrachlorodibenzo-*p*-dioxin antagonist in C57BL/6 mice **(Some species specific effects of TCDD antagonists are described)**
by R. Bannister, L. Biegel, D. Davis, B. Astroff and S. Safe (College Station, TX) 139–150

Premature acrosome reaction in spermatozoa from lead-exposed mice (**The reduction of fertility during lead exposure is investigated**)
by L. Johansson (Uppsala, Sweden) 151–162
Sex-differences in nephrotoxic and gastrointestinal effects of phenylbutazone (**Phenylbutazone affects female rats more severely than male animals**)
by N. Dociu, C. Cojocel and K. Baumann (Hamburg, F.R.G.) 163–175
Comparative effects of kainic, quisqualic, and ibotenic acids on phenylethanolamine-*N*-methyltransferase-containing cells of rat retina (**PNMT-containing cells are sensitive to kainic and quiscalic acid**)
by J. Cohen (Washington, DC) 177–182
Effects of subacute administration of *O,S,S*-trimethyl phosphorodithioate on cellular and humoral immune response systems (**Low doses of DSS-TMP may enhance immunocompetence, high doses suppresses it**)
by K.E. Rodgers, M.L. Stern and C.F. Ware (Los Angeles, and Riverside, CA) 183–195
Effects of dimethyl sulfoxide (DMSO) on pulmonary fibrosis in rats and mice (**DMSO enhances bleomycin induced lethality and has no effect on development of fibrosis**)
W.M. Haschek, K.E. Baer and J.E. Rutherford (Urbana, IL) 197–205
Toxicity of fenclor 42 in mice: effects on immunocompetent cells (**A descriptive immunotoxicology of a commercial mixture of trichlorobiphenyls**)
by P. Franco, O. Marelli, G. Canti, L. Ricci, N. Prandoni and A. Nicolin (Milan and Genoa, Italy) 207–218
Toxicity studies with quinine hydrochloride (**A classical oral toxicity, embryotoxicity and ototoxicity study**)
by J.C. Colley, J.A. Edwards, R. Heywood and D. Purser (Huntingdon, U.K.) 219–226
Corrigendum 227
Contents of Journals Relating to Toxicology 229–230
Editorial Remark 231

What is the proper experimental unit for long-term rodent studies? An examination of the NTP benzyl acetate study (**A re-evaluation of a previous toxicity study**)
by S.S. Young (Research Triangle Park, NC) 233–239

REVIEW PAPER
The genetic basis of suspectibility to lung tumors in mice
by A.M. Malkinson (Boulder, CO) 241–271

Research Papers
Assessment of thrombogenic potential of liposomes (**The electrical surface charge of liposomes determines their effect on the coagulation system**)
by G. Zbinden, H. Wunderli-Allenspach and L. Grimm (Zurich, Switzerland) 273–280
A selective decrease in the xenobiotic metabolizing activity of rat lungs by nitrogen dioxide exposures (**Enzymes specifically affected are coumarin hydoxylase and 7-ethoxycoumarin *O*-deethylase**)
by Y. Takahashi and T. Miura (Ibaraki, Japan) 281–296
Interaction of cadmium with brush border membrane vesicles from the rat small intestine (**Cd uptake is time, concentration and temperature dependent and reaches equilibrium with the uptake medium in about 10 min**)
by C. Bevan and E.C. Foulkes (Cincinnati, OH) 297–309
Effect of reserpine in *N*-methylthiobenzamide-induced pulmonary edema: role of lung norepinephrine and hypothermia (**Hypothermia induced by reserpine may protect against edema development**)
by L.S. Gibbs and G.J. Traiger (Lawrence, KS) 311–321
Influence of 2,3-dimercaptopropane-1-sulfonate and dimercaptosuccinic acid on the mobilization of mercury from tissues of rats pretreated with mercuric chloride, phenylmercury acetate or mercury vapors (**Both chelators mobilize mercury and lead to its excretion**)
by J.P. Buchet and R.R. Lauwerys (Brussels, Belgium) 323–333
Thiosulphate and hydroxocobalamin prophylaxis in progressive cyanide poisoning in guinea pigs (**Thiosulphate has a longer protective action than hydroxocobalamin**)
by K. Mengel, W. Krämer, B. Isert and K.D. Friedberg (Mannheim, F.R.G.) 335–342

Contents of Journals Relating to Toxicology 343–345
Subject Index Volume 54 347–350
Author Index Volume 54 351–352
Volume Contents Volume 54 353–355